

A VARIABLE INTENSITY WIDE-ANGLE ILLUMINATOR

ABSTRACT OF THE DISCLOSURE

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A variable-intensity, wide-angle illuminator is disclosed, one embodiment comprising: a light source for providing a light beam; an optical cable, optically coupled to the light source for receiving and transmitting the light beam; a handpiece, operably coupled to the optical cable to receive the light beam; an optical fiber, operably coupled to the handpiece, wherein the optical fiber is optically coupled to the optical cable to receive and transmit the light beam; an optical element, optically coupled to a distal end of the optical fiber, for receiving the light beam and scattering the light beam to illuminate a surgical field, wherein the optical element comprises: a polymer matrix; and a plurality of microbubbles displaced within the polymer matrix; and a cannula, operably coupled to the handpiece, for housing and directing the optical fiber and the optical element. The optical element can be a small-gauge, diffusive optical element having circular or semi-ellipsoidal incident surfaces. For example, the optical element can be a 19, 20 or 25 gauge optical element. Further, the optical element, the cannula and the handpiece can be fabricated from biocompatible materials. The optical cable can comprise a first optical connector operably coupled to the light source and a second optical connector operably coupled to the handpiece (to optically couple the optical cable to the optical fiber housed within the handpiece and cannula).

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